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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/792,281

03/04/2004

Atsushi Yanai

SNY-054

3138

20374 7590 03/07/2007

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1745

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|-----------|---------------|
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/792,281

Applicant(s)

YANAI ET AL.

Examiner

Robert Hodge

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/12/04 & 12/13/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pre-grant Publication No. 2004/0101763 hereinafter Kotato in view of U.S. Patent No. 6,022,518 hereinafter Yamazaki.

Kotato teaches a lithium (paragraph [0031]) secondary battery (paragraph [0025]) comprising a positive electrode 1, a negative electrode 2 (paragraph [0026]), a carbon material (such as graphite) as an active material (paragraph [0033]), and a non-aqueous electrolyte comprising  $\gamma$ -butyrolactone between 50-95% by volume

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(paragraphs [0006] and [0047]), vinylene carbonate between 0.01 to 5% by weight and vinyl ethylene carbonate between 0.01-5% by weight, wherein the sum of the solvents constitute 100% by volume or 100% by weight of the non-aqueous electrolyte (paragraph [0051]).

Kotato does not teach the specific properties of carbon material used as the active material.

Yamazaki teaches a carbon material that is substituted for graphite in non-aqueous secondary batteries such as lithium secondary batteries, said carbon material having a Raman spectrum intensity of 0.45 or less, or 0.41 or less (column 4, line 65 – column 5, line 61) and more specifically in table 1 having intensities of 0.39, 0.34, 0.40, 0.40, 0.41 and 0.38 all of which are greater than 0.2.

At the time of the invention it would have been obvious to one having ordinary skill in the art to include a carbon material having a Raman spectrum intensity greater than 0.2 in Kotato as taught by Yamazaki in order to provide a lithium-ion secondary battery that has increased charge and discharge capacities, with ensured low temperature performance to improve the overall life of the battery by reducing the cycle deterioration.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotato in view of Yamazaki as applied to claim 1 above, and further in view of JP 2001-297794 hereinafter Kotado.

Kotato as modified by Yamazaki does not teach that the amount of  $\gamma$ -butyrolactone is not less than 97% by volume.

Kotado teaches a non-aqueous lithium secondary battery, where it is preferable to provide  $\gamma$ -butyrolactone at an amount of greater than 90% by weight and further teaches the benefits of doing so (paragraphs [0007]-[0024] of the machine translation).

At the time of the invention it would have been obvious to one having ordinary skill in the art to include  $\gamma$ -butyrolactone at an amount greater than 90%, 95% and 97% by volume in Kotato as taught by Kotado in order to provide a lithium secondary battery that has a low freezing point and high specific inductive capacity which will ensure increased charge and discharge capacities and improve the overall life of the battery.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH



PATRICK JOSEPH RYAN  
SUPERVISOR/PAIR EXAMINER